

REMARKS

Applicant's undersigned counsel appreciates Examiner Vo's continued careful and thorough examination of the present application. The claims have been amended and claims 4, 6, 24-25, 27-32, 34 and 36 have been canceled without prejudice. In addition, new claims 47-49 have been added. No new matter has been entered.

Claim 19, previously an independent claim, has now been rewritten to depend from new claim 47. New claim 47 is based on original claim 1 as modified by original dependent claims 27 and 28.

In the last amendment, claim 1 was canceled in favor of pursuing it in a divisional application, and claims dependent therefrom were made dependent from claim 19, which was previously allowed. However, in the last Office action the Examiner withdrew the allowance of claim 19 and reopened prosecution. Applicant has therefore reinstated prior claim 1, as modified by prior claims 27 and 28, in the present application as new claim 47. All other claims now depend directly or indirectly from claim 47.

As now presented, claim 47 is directed to:

- a heat shield having a foam layer disposed between two metallic outer layers,
- whose foam layer is deformable to accommodate a particular shape and contour to which the heat shield is to be bent and to generally conform in use without substantially damaging the cellular structure of the foam as a result of such deformation,
- the foam layer being effective to withstand operative heat shield temperatures of at least 1000°F,
- the foam layer being effective to dampen acoustic tonal frequencies below 2000 Hz,
- the heat shield being fastened or mounted to a body panel of an automobile.

None of the references of record, nor any reasonable combination of them, fairly discloses or suggests this combination of features in a single construction. Specifically, with respect to the temperature resistance and the damping capability recited in claim 47, the Examiner has repeatedly acknowledged the references are silent as to these two features. But she has persisted in rejecting these features as obvious because, she has argued, certain references

disclose the same foam material as used by applicants. Accordingly, the argument continues, the foams in the references must behave similarly as claimed by the applicants because materials of the same composition must have the same properties.

This argument is based on flawed reasoning. The reasoning is flawed because there is absolutely no reason to consider any foam described in any of the prior art references to be of a composition that would satisfy the limitations on the foam now recited in claim 47. For one thing, the references cited by the Examiner that purport to show metal-foam-metal constructs do not describe any foam compositions. So there is no composition from any prior art reference to compare to any foam composition disclosed in the present application. Take the new-found Pollock and Hurwitz references as examples. Pollock mentions a polyethylene foam (col. 1, ln. 48) and Hurwitz a polyurethane foam (col. 4, ln. 30). But neither provides any compositions for these foams. Polyurethane foams, for example, are made as the reaction product of polyols with isocyanates, such as diisocyanates, in the presence of a blowing agent. But there are literally thousands, if not millions, of different combinations in which different species of just these two basic classes of ingredients can be combined to produce a polyurethane foam, to say nothing of additional ingredients that can be used (e.g. catalysts). For example, the polyol can be amine-based, glycerin based, sucrose-based, etc.; it can be 2-functional, 3-functional, 4-functional, it can include ethylene oxide extension units or propylene oxide extension units, or combinations of both as well as other extension units; it can have a low hydroxyl number or a high hydroxyl number, a low molecular weight or a high molecular weight; and most importantly, multiple polyols can be combined together to prepare a particular foam composition. The foregoing is just a partial list of the parameters that can be varied or selected for particular polyols. It will be readily recognized that the number of potential combinations of just two or three polyols to make a polyurethane foam can be endless based on varying numerous parameters such as those mentioned above, not even accounting for other components that also can be varied, such as catalysts, blowing agents, isocyanates, etc.

It is important for the Examiner to recognize that "polyurethane foam" is a class of foams, not a composition for a foam. By varying the initiator molecules (amine/glycerin/sucrose/ethylene/etc.), weights, hydroxyl numbers, degree of functionality, degree of ethylene-oxide versus propylene-oxide extension, etc. of polyols that go into a polyurethane foam composition, as well as the combinations of two, three, four, or more

particular polyols together with particular combinations of catalysts, blowing agents, etc., polyurethane foams having vastly different physical properties can be prepared.

This is why a reference to simply "polyurethane" foam in a prior art reference does not make the foam properties now recited in claim 47 necessarily inherent in that reference. Applicants have found that at least one polyurethane foam composition can be used, e.g. see Table 1, but this does not by any means imply that all polyurethane foams can be used. To show inherency, the Examiner must either: 1) directly compare a foam whose composition is given in the prior art to a foam composition disclosed by applicants for producing a foam having the recited temperature-resistance and acoustical-damping properties, or 2) explain why, based on the reference teachings, these properties would be necessarily and invariably inherent in the foam described in the composition. As described in the MPEP at § 2112(IV), mere possibilities or probabilities will not suffice to show inherency. Rather, the supposed inherent property must be necessarily and definitely present; i.e. a technical fact of the reference. It is applicants' position that because the prior art does not disclose or suggest a heat shield having the specific features recited in claim 47, including particularly a foam layer having the properties described in that claim, claim 47 is allowable.

Turning to the references, Pollock and Hurwitz, just discussed, clearly do not disclose a foam having the properties recited in claim 47. For one thing, both references are directed to bedding and related textile articles. There would be no need to produce a foam for textile applications, such as the bedding described in Pollock and Hurwitz, that can withstand temperatures of at least 1000°F. So clearly there is no reason to believe the foams in these references could do so, nor to infer any suggestion to employ a foam that could. One certainly would not be motivated to undertake the time and expense to design a foam having such exceptional temperature-resistance properties for use in a duvet or pillow that will never see temperatures greater than, say, around 100°F. In addition, there would be absolutely no motivation to consider either of these references, which are directed to bedding, when formulating a solution to automobile damping and heat shielding applications.

Regarding Holtrop and Ohira, the Examiner herself has recognized these references do not disclose the temperature resistance and acoustical damping properties as recited in claim 47. Instead, she has argued, a foam made through combining the teachings of these references would inherently have these properties because it would be "made from the same material and [have]

thickness in the same range" as disclosed in the application. Office action, p. 6. Again, this reasoning is flawed and is believed based on the erroneous conclusion that all polyurethane foams are the same. They are **not** all the same, and just because one reference mentions a polyurethane foam does not mean the foam in that reference is the same polyurethane disclosed in the present application. Therefore, it is not evident, either directly or through inference, that the combination of Holtrop and Ohira would produce a foam having the properties described in claim 47, for similar reasons as already described.

With respect to Seibert, previously applied against prior claim 28 on which present claim 47 is based, the Examiner likewise acknowledged that Siebert does not disclose the temperature resistance or acoustical damping properties now recited in claim 47. See Office action, paper No. 0121 at p. 3. The Examiner instead relied on a similar inherency argument as above, on the supposed ground that if the prior art discloses a polyurethane foam then it must be the same polyurethane as disclosed in the present application. This premise is false, however, for reasons already described, and it is submitted Seibert also does not anticipate or fairly suggest a foam having the recited properties.

For at least the foregoing reasons, it is believed claim 47 is in condition for allowance.

Claim 15 also has also been rejected for obviousness over Pollock and Hurwitz discussed above, further in view of Ivester. This rejection is traversed. First, Pollock and Hurwitz do not fairly disclose, or remotely suggest, the heat shield having the structure recited in claim 47 being mounted or fastened to an automobile body panel as also recited in that claim. (Claim 15 depends from claim 47, and therefore incorporates all of its limitations). Second, Ivester does not fairly or even remotely suggest a porous material layer embedded within the foam layer of an automobile heat shield, which itself is disposed in between first and second metallic outer layers as recited in claim 47. Ivester is directed to a fragrance-releasing pillow where an insert having multiple compartments for capsules of a volatile substance (that produces a fragrance on evaporating) is embedded within the filling of a pillow. With respect, this device bears absolutely no comparison with the heat shield recited in claim 15. If one were considering how to improve heat shield performance for an automobile body panel, he **would not** look to a reference describing a fragrance-releasing pillow. The rejection of claim 15 based on Ivester is based entirely on hindsight reconstruction of applicant's invention, using references that do not even remotely relate to the applicants' field of art or the claimed invention. No reference, or

combination of references, remotely suggests providing an automobile heat shield as described in claim 47, that has a porous material layer embedded within the foam layer thereof. Certainly, there would be no motivation to employ the insert of Ivester in such a heat shield because one would not be motivated by any desire to perfume such a heat shield.

Accordingly, at least claims 47 and 15 are independently allowable for at least the foregoing reasons. All remaining claims are dependent claims, and are therefore allowable at least by virtue of the allowability of their respective base claim(s). Therefore, a Notice of Allowance in this case is earnestly and respectfully requested.

However, should the Examiner be of a mind to reject the claims, it is respectfully requested that she fully elucidate all grounds for rejection based on every combination of the references she believes to be applicable, so that all such grounds can be fully considered and disposed of, favorably or unfavorably, on appeal.

Should the Examiner have any questions regarding this submission, or for any other reason that may advance the prosecution of this case, she is requested to please contact the undersigned attorney at the phone number provided below.

If there are any required fees that are not covered by the enclosed check, please charge said fees to our Deposit Account No. 16-0820, Order No. 35691US1.

Respectfully submitted,

PEARNE & GORDON LLP

By: 

Steven J. Solomon, Reg. No. 48719

1801 East 9th Street
Suite 1200
Cleveland, Ohio 44114-3108
(216) 579-1700

Date: March 1, 2006